

Health Consultation

CHEMCENTRAL

December 14, 1999

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**Prepared by
The Washington State Department of Health
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry**



FOREWORD

The Washington State Department of Health has prepared this health consultation under cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), an agency of the U.S. Public Health Service. The goal of Washington State Department of Health and ATSDR is to identify and mitigate adverse human health effects resulting from exposure to hazardous substances in the environment. This report was prepared in accordance with methodologies and guidelines developed by ATSDR.

Health Consultations are conducted to better characterize past, current, and potential future human exposures to hazardous substances in the environment and to more thoroughly evaluate existing and potential health effects related to those exposures. Three primary methods are used to collect information during a health consultation: (1) Biomedical testing, such as the collection of blood or urine samples, to provide information on current (and sometimes past) exposures to a contaminant, (2) Environmental testing, such as the collection of soil, water, air, or dust, to help determine possible exposure sources, and (3) Exposure-dose reconstruction which utilizes environmental sampling information and computer models to estimate the contaminant levels that people may have been exposed to in the past or may be exposed to in the future.

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BACKGROUND AND STATEMENT OF ISSUES

The Washington State Department of Health (DOH) has prepared this health consultation at the request of the Washington State Department of Ecology (Ecology) to evaluate potential public health hazards posed by CHEMCENTRAL.

Located at 6308 E. Sharp Avenue, in an industrial area of the Spokane valley, CHEMCENTRAL is a liquid chemical distribution facility where bulk supply products are brought to the site by rail or trucks and stored on-site in aboveground storage tanks (Figure 1). Chemicals are transferred from the aboveground storage tanks into 55 gallon drums or smaller containers for distribution. CHEMCENTRAL is within an industrial area with a roofing company to the east and a vacant lot with a railroad spur to the west. Several petroleum tank farms are located within one half mile to the northwest, northeast, and southeast.¹ There are residential homes a half mile from the site, a school for advanced students (K-6) approximately one mile northeast, and a junior high school approximately one-mile east of the site.

The Spokane facility is one of 32 distribution plants operated by CHEMCENTRAL Corporation throughout the United States.² CHEMCENTRAL, in East Spokane, operated from 1962 (then known as Central Solvents) until 1991 with as many as 16 underground storage tanks (USTs). In 1991, all 16 USTs were removed. In 1992, a site assessment discovered contamination beneath former tank locations 1 through 9, and that contamination was most likely due to overfilling of tanks and/or leaking ancillary piping.⁴ Table 1 below, indicates the contents of tanks 1-9 during this period:

TABLE 1
CONTAMINANTS BENEATH TANKS 1-9*

Tank number	Contents
1	Xylenes
2	Mineral spirits
3	Toluene
4	Anhydrous
5	Isopropyl alcohol
6	Acetone
7	Lacquer diluent
8	MEK
9	140 Solvent 66/3

* Capacity of each tank was 4,000 gallons.

It has been estimated that approximately 300 cubic yards of soil has been contaminated from these releases.⁴ During decommissioning of the USTs, a vapor extraction system (VES) was installed to remediate the VOCs and mineral spirits.

DISCUSSION

Potentially exposed individuals include industrial workers, who could have been exposed to contaminants by inhalation or dermal contact. However, there are currently no completed exposure pathways and do not appear to be any potential pathways leading to human exposures. The constituents of concern for CHEMCENTRAL prior to site remediation are listed above in Table 1. Soil was the primary environmental medium of concern since groundwater beneath the site is confined and does not appear to connect to any main aquifers used for drinking water. Vertical depth to groundwater is approximately 63 feet below ground surface, flowing to the west, and the distance to the nearest drinking water well is 1,400 feet. In addition, the site is located in an area of primarily industrial uses. The residences and school are not impacted by environmental contamination from this site.

Soil sampling and analysis was conducted during site remediation activities from June 1993 until April 1996. A vapor extraction system (VES) was installed and used to remediate the contaminated soil from September of 1993 through May of 1995. Concentrations of the contaminants of concern decreased during that time and were non-detectable in June of 1995. The system continued to operate until May of 1996 and the VES was evaluated by soil gas analysis of samples and three soil borings to confirm that remediation was complete. Analysis of stack emissions from the VES confirmed that removal of contaminants in the soil was complete. In addition, 10 soil samples collected from soil borings were analyzed for mineral spirits and VOCs, and found to be at concentrations less than Ecology cleanup levels. Based on limited sampling, groundwater does not appear to be impacted.

EXPOSURE PATHWAY AND CHILDREN

The potential for exposure and subsequent adverse health effects are often increased for young children as opposed to older children or adults. Since this is an industrial area and the site is fenced, children are unlikely to venture onto this facility to play. Generally, children are far more likely to engage in activities that involve getting dirty. Playing in dirt combined with frequent hand-to-mouth activity, provides toddlers and young children with an increased chance of exposure to contaminants by way of ingestion, inhalation, and skin contact. In addition to the potential for higher exposures of young children, the risk of adverse health effects is also increased. ATSDR and DOH recognize that children are susceptible to developmental toxicity that can occur at levels much lower than those causing other types of toxicity.

However, with this site, children are highly unlikely to be exposed to mineral spirits and VOCs in the soil since it has been remediated by the VES. Since this evaluation is expected to be protective of children, who are more sensitive, it is protective for adults as well.

CONCLUSIONS

- No pathways are completed for exposure to contaminants of concern.
- No public health hazard exists from exposure to volatile organic compounds and mineral spirits.
- Soil beneath former underground storage tanks was found to be contaminated with volatile organic compounds and mineral spirits. A vapor extraction system (VES) was used to remediate the contaminated soil, followed by confirmatory soil and air emission sampling, which showed soil was remediated to levels below Ecology clean up standards. One soil sample was taken immediately above the water table and below the release area in order to show that the release did not impact groundwater.

RECOMMENDATIONS

There are no recommendations.

REFERENCES

1. Memo to F. Goldstein from P. Carter, IRAP Review – CHEMCENTRAL, July 11, 1997.
2. Independent Remedial Action Report CHEMCENTRAL, Fulcrum Project #96554, April 1997.
3. Notification of Dangerous Waste Activities, Ecology form #2, January 5, 1998.
4. Worksheet 1, Summary Score Sheet, CHEMCENTRAL, March 1, 1994.

Glossary

Aquifer	An underground formation composed of materials such as sand, soil, or gravel that can store and/or supply groundwater to wells and springs.
Agency for Toxic Substances and Disease Registry (ATSDR)	The principal federal public health agency involved with hazardous waste issues, responsible for preventing or reducing the harmful effects of exposure to hazardous substances on human health and quality of life. ATSDR is part of the U.S. Department of Health and Human Services.
Contaminant	Any chemical that exists in the environment or living organisms that is not normally found there.
Dose	A dose is the amount of a substance that gets into the body through ingestion, skin absorption or inhalation. It is calculated per kilogram of body weight per day.
Exposure	Contact with a chemical by swallowing, by breathing, or by direct contact (such as through the skin or eyes). Exposure may be short term (acute) or long term (chronic).
Groundwater	Water found underground that fills pores between materials such as sand, soil, or gravel. In aquifers, groundwater often occurs in quantities where it can be used for drinking water, irrigation, and other purposes.
Hazardous substance	Any material that poses a threat to public health and/or the environment. Typical hazardous substances are materials that are toxic, corrosive, ignitable, explosive, or chemically reactive.
Organic	Compounds composed of carbon, including materials such as solvents, oils, and pesticides which are not easily dissolved in water.
Risk	The probability that something will cause injury, linked with the potential severity of that injury. Risk is usually indicated by how many extra cancers may appear in a group of people who are exposed to a particular substance at a given concentration, in a particular pathway, and for a specified period of time. For example, a 1%, or 1 in 100 risk indicates that for 100 people who may be exposed, 1 person may experience cancer as a result of the exposure.
Volatile organic compound (VOC)	An organic (carbon-containing) compound that evaporates (volatilizes) easily at room temperature. A significant number of the VOCs are commonly used as solvents.